MANUFACTURING PROCEDURE

PATIENT HANDLING TABLE PRO 2000TM4 MULTI AXIS / RETRACT - EXTEND

1 REVISION HISTORY

REV	DESCRIPTION OF CHANGE	D.O. #	EFFECTIVE DATE
NC	Initial Release Prepared by S. Chhim 8/03	6258	8/20/03
A	Modified to correct documentation errors specifying assy components. Prepared by S.Taylor 9/03.		

2 PURPOSE / SCOPE

This Procedure specifies a method of assembling the Pro 2000TM4 Patient Handling Table Assembly to ensure proper operation.

3 DEFINITIONS

Not Applicable

4 REFERENCES

D20-0174-103	Assembly - Pro2000 TM4, Center Post, 30.1” Height, 230V, 500 LB
D20-0046-002	Base Support Leg, Pain Management Table
D20-0235-101	Assembly - Lift, Pain Management Table

5 GENERAL REQUIREMENTS

All operations in this procedure shall be performed in a clean and neat environment.

6 MATERIAL/EQUIPMENT

6.1 General assembly hand tools
6.2 Wire stripper, cutter and crimper

7 SAFETY PRECAUTIONS

Not Applicable

8 PROCEDURE

8.1 Review the appropriate assembly drawing D20-0174-103, and other documents before starting. The bill of materials should agree with the list of parts issued from stock.

8.2 Place the Base Plate (D20-0111-001) & Counterweight (D20-0169-001) upside down on the dolly.

NOTE: The four holes at the four corners on the baseplate should face up when placed on dolly.

8.3 Attach two (2) Base Support Legs (D20-0046-002) to the Base Plate (D20-0111-001) using four (4) socket flat head, metric screws M12 x 30mm LG (D02-0423-016). Use two (2) M12 x 30mm screws to attach Counterweight (D20-0169-001). Use **LOCTITE 242** (D00-0018-003) on the screws. Firmly tighten screws.

Note: See Drawing D20-0174-103 for the correct orientation/location.

8.4 Thread and tighten four (4) Casters with kick stop (D02-0361-003) into the four (4) corners of the Base support leg (D20-0046-001). Use **LOCTITE 242** (D00-0018-003) on the screws.

8.5 Now **carefully** turn the base/leg subassembly over. *Subassembly is very heavy*. See **Figure 1.**

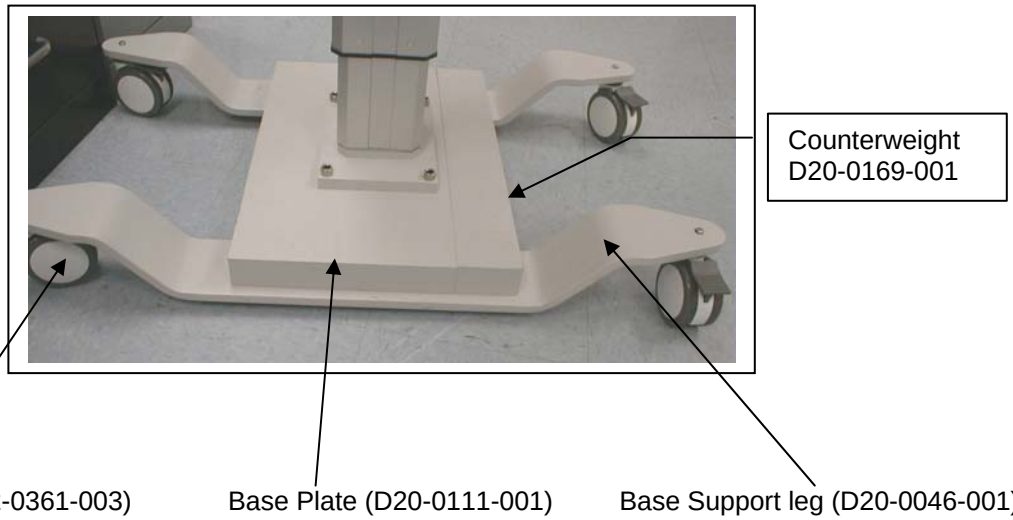


Figure 1

8.6 Place lift extrusion (D20-0235-101) upside down; attach Lift Spacer Plate (D20-0170-001) & Lift mount Plate (D20-0112-001). Use four (4) socket head cap metric screws M10 x 45 mm (D02-0423-038)**.** Use **LOCTITE 242** (D00-0018-003) on the screws. Firmly tighten screws.

8.7 Now carefully turn Lift extrusion over.

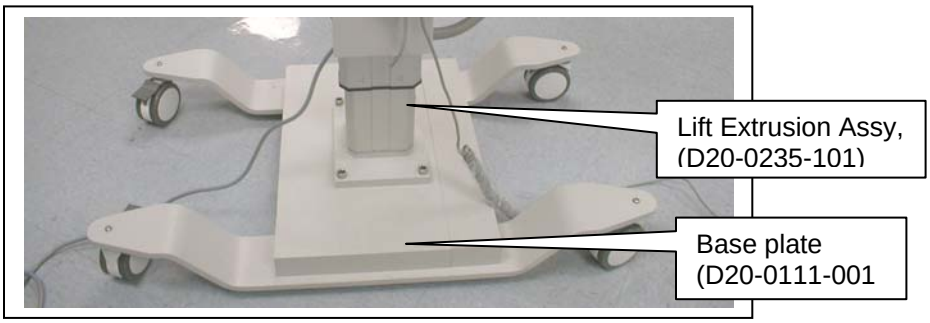


Figure 2

8.8 Attach the Lift Extrusion Assembly (D20-0235-101) on top of the base plate (D02-0111-001) Using four (4) socket head cap metric screws M12 x 35 mm(D02-0423-017). Use **LOCTITE 242** (D00-0018-003) on the screws. Firmly tighten screws. **See Figure 2**.

8.9 Use the vise-press to insert the bushing (D02-0153-004) into the one Pivot Housing (D20-0052-001); ensure the bushing is straight going into the pivot housing and press all the way in until flush.

8.10 Attach the Pivot Housing (D20-0052-001) on the Mounting Plate (D20-0052-001) using two (2) socket head cap metric screws M8 x 25 mm (D02-0423-012). Use **LOCTITE 242** (D00-0018-003) on the screws. The screws are inserted from the bottom of the plate. Firmly tighten screws.

8.11 Install one Thrust Washer (D02-0410-003) onto each end of the shaft of the Upper pivot (D20-0042-001).

8.12 Insert the Upper Pivot (D20-0042-001) into the Pivot Housing (D20-0052-001) already attached on the plate (the rectangle surface goes on top).

8.13 Insert the Pivot Housing (D20-0053-001) onto the other side of the Upper Pivot (D20-0042-001) using two (2) socket head cap metric screws M8 x 55 mm (D02-0423-020). Use **LOCTITE 242** (D00-0018-003). The screws are inserted from the top of the pivot housing; ensure that the Upper Pivot rotates freely before firmly tightening the four Pivot Housing screws. **See Figure 3.**

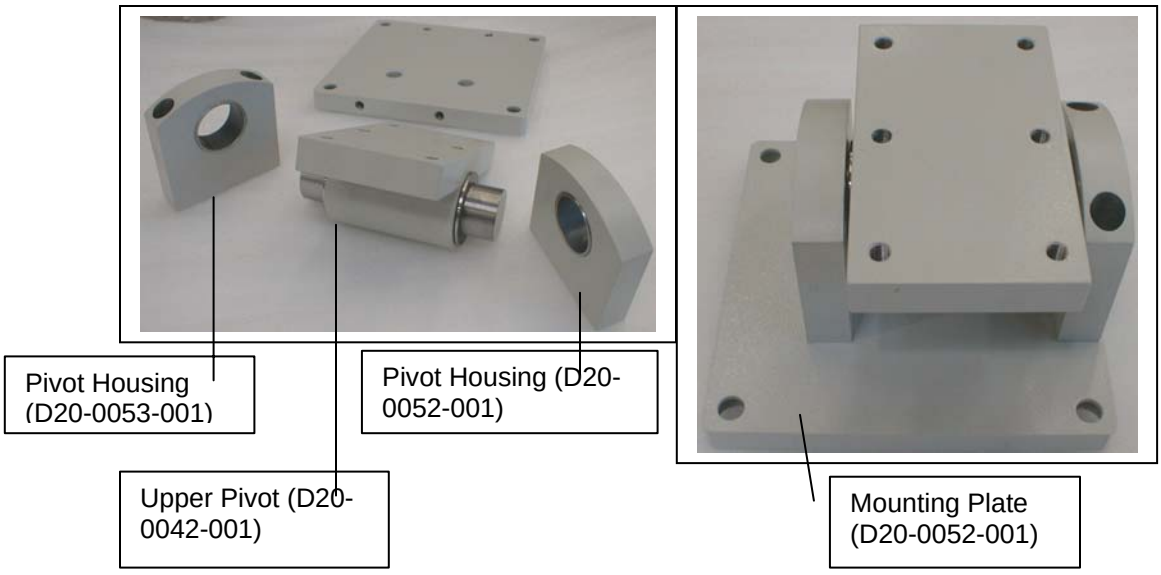
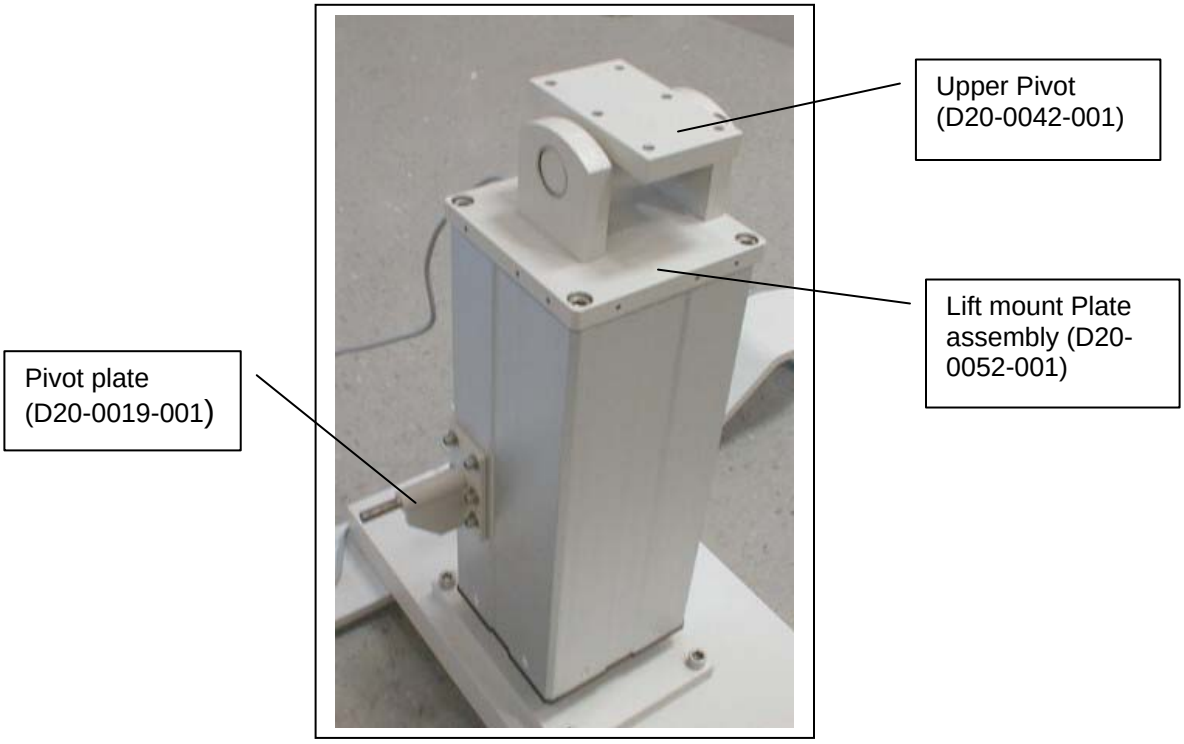


Figure 3

8.14 Attach the Mount Plate (D20-0052-001) on the top of the Lift Extrusion (D20-0235-101) using four (4) Socket Head Cap screws M10 x 30 mm (D02-0423-018). Use **LOCTITE 242** (D00-0018-003)on the screws. Firmly tighten screws. Note orientation **See Figure 4.**

8.15 Attach the Pivot Plate (D20-0019-001) on the Lift Extrusion; mount on the column opposite the cable side using six (6) socket head cap metric screws M6 x 16 mm (D02-0423-014), six (6) washers 6mm (D02-0403-001) and six (6) lock washers ¼ (D02-0002-003). Use **LOCTITE 242** (D00-0018-003) on the screws. Firmly tighten screws. **See Figure 4.**

Figure 4



8.16 Attach the Actuator (D02-0491-002), “motor drive side”. Insert the U-bracket with the hole onto the pin on the Pivot Plate (D20-0019-001) mounted on the bottom of the Lift Extrusion. Use external retaining ring 10 mm dia (D02-0077-002) to lock the pin.

Note: ***On both ends of the Actuator (D02-0491-002) the U-Bracket should have a (white) plastic bushing inserted. See Figure 5.***

Figure 5
U-Bracket should have two (white) plastic bushings

8.17 Attach the Actuator Mount Bracket (D20-0167-001) onto the upper Pivot (D20-0042-001). Align the two center holes on the Bracket with the two center holes on the upper pivot plate. Using two (2) Socket Head Cap screws M8 x 25 mm (D02-0423-012); Use **LOCTITE 242** (D00-0018-003) on the screws. Firmly tighten the two screws in the middle. **See Figure 6.**

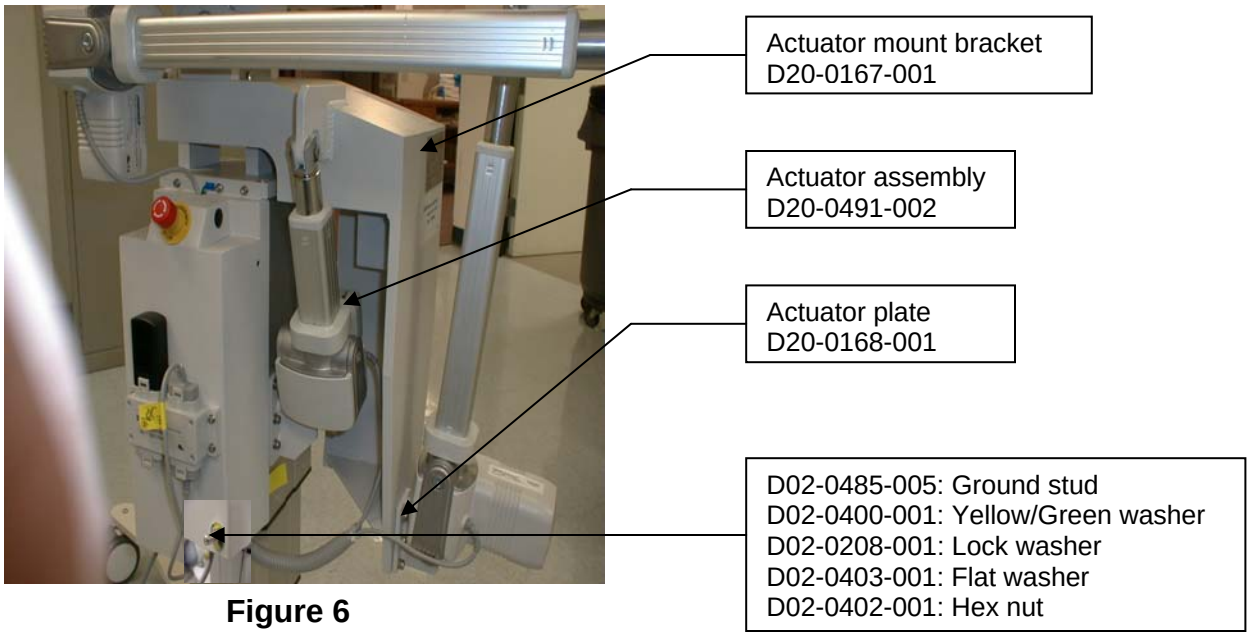


Figure 6

8.18 Attach the other end of Actuator assembly (D02-0491-002) onto the bracket of the Actuator Mount Bracket (D20-0167-001) using the Dowel Pin (D20-0056-002) to insert through the hole. Use external retaining ring 10 mm dia (D02-0077-002) to lock both sides. **See Figure 6.**
Note: See Drawing D20-0174-103 for the correct orientation/location

8.19 Attach the Pivot Housing (D20-0053-001) on the Actuator Mount Bracket (D20-0167-001) using two (2) socket head cap metric screws M8 x 55 mm (D02-0423-020). Use **LOCTITE 242 (**D00-0018-003) on the screws. Lightly snug screws until Actuator (D02-0491-002) is installed. **See Figure 7.**
Note: one side only.

Figure 7

8.20 Slide one Thrust Washer (D02-0410-003) onto each side of the shaft on the Upper Pivot (D20-0042-101).

8.21 Insert the Upper Pivot (D20-0042-001) end with the shaft into the Pivot Housing (D20-0053-001) on the Actuator Mount Bracket (D20-0167-001).

8.22 Insert the other Pivot Housing (D20-0053-001) onto the other end of the shaft on the Upper Pivot (D20-0042-001) using two (2) socket head cap metric screws M8 x 55 mm (D02-0423-020). Use **LOCTITE 242** (D00-0018-003) on the screws. Lightly snug screws until Actuator (D02-0491-003) is installed. **See Figure 7.**

8.23 Attach the Table Slide Frame (D20-0171-102) to the Upper Pivot (D20-0042-001) using (6) six Socket Head cap screws M8 x 25mm (D02-0423-012). Use **Loctite 242** (D00-0018-003) on the screws.

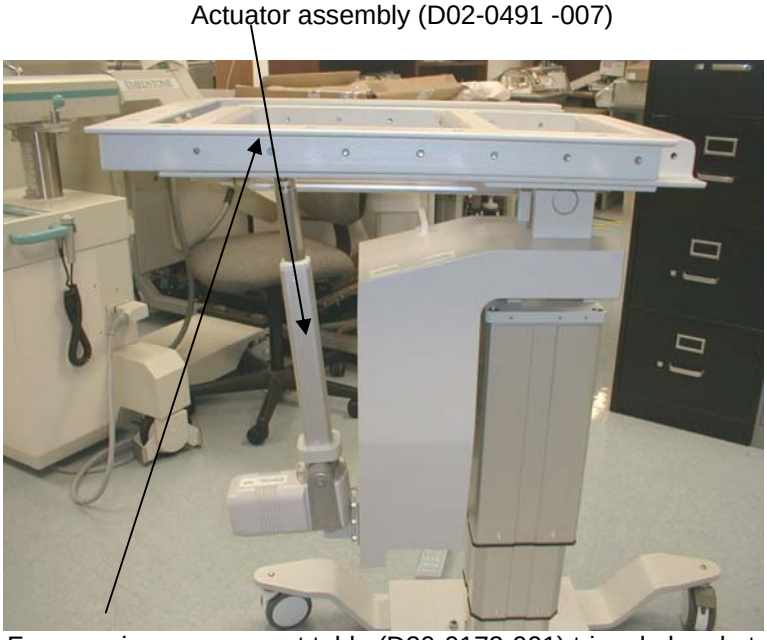
8.24 Attach the Actuator Plate (D20-0168-001) onto the Actuator Mount Bracket (D20-0167-001) using six (6) Socket Head Cap screws 5/16-18 x 1 (D02-0011-051), six (6) Lock Washers (D02-0002-008), & six (6) Flat Washers (D02-0003-008). Use **LOCTITE 242** (D00-0018-003) on the screws. Firmly tighten screws. **See Figure 6.**

8.25 Attach the Actuator assembly (D02-0491-007) “motor drive side”. Insert the U-bracket with the hole onto the Actuator Plate (D20-0168-001)

mounting on the bottom of the Actuator Mount Bracket using the Dowel Pin (D20-0056-002) to insert through the hole. Use external retaining ring 10 mm dia (D02-0077-002) to lock both sides of pin. **See Figure 8.**

Note: ***On both ends of the Actuator Assembly (D02-0491-007) the U-Bracket should have a (white) plastic bushing inserted. Refer to Figure 5.***

8.26 Attach the other side of the Actuator Assembly (D02-0491-007) onto the Table Slide Frame (D20-0172-001) triangle bracket. Use the Dowel pin (D20-0056-002) to insert through the hole in the U-bracket. Use external retaining ring 10 mm dia (D02-0077-002) to lock the pin on both sides. **See Figure 8.**

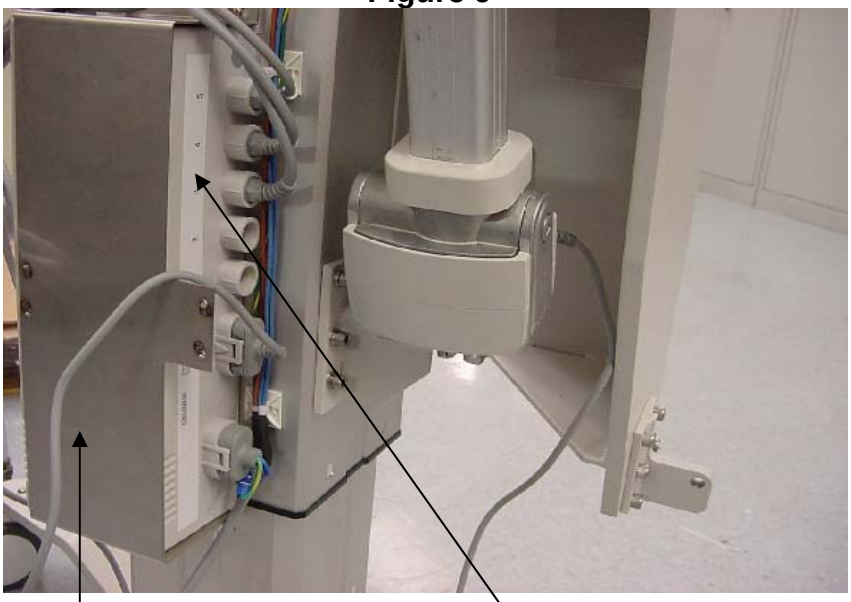


Frame pain management table (D20-0172-001) triangle bracket

Figure 8

8.27 Place the Distributor Box Mount (D20-0058-001) on the Control Unit (D01-0689-002) using two(2) socket head cap screw s # 8-32 x .50 (D02-0011-041) and two (2) #8 Flat Washers (D02-0003-001). Attach the Distributor Box Mount and the Control Unit to the top half of Lift Extrusion (D20-0235-101), on the cable side. **See Figure 9.**

Figure 9



Note: See Drawing D20-0174-103 for the correct orientation/location

8.28 At the bottom using two (2) socket head cap screws # 8-32 x .3/4 (D02-0011-009), two (2) #8 Flat Washers (D02-0003-001), two (2) #8 Lock washers (D02-0002-001) and two (2) locking nylon Nut Inserts # 8-32 (D02-0056-006). Attach the Distributor Box Mounts (D20-0058-001) to the bottom of the Lift Extrusion. Firmly tighten screws. **See Figure 9.**

8.29 Attach one (1) yellow/green Washer (D02-0400-001) to the Ground Stud (D02-0485-005). Mount onto control box cover (D20-0166-001) with all hardware shown in **Figure 6**.

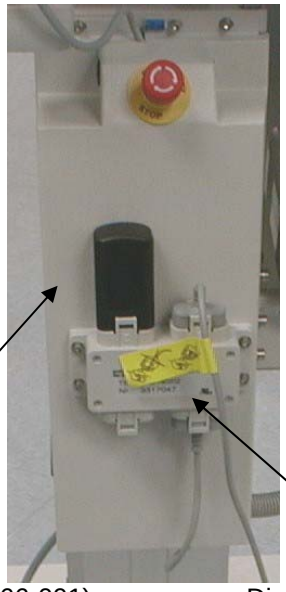


Figure 10

8.30 Attach the Emergency Stop (D01-0592-001) to the center of the Control Cover Box (D20-0166-001). Firmly tighten screws. **See Figure 10.**

Prepare one end of the E stop Wire as follows. See Figure 11.

8.30.1 Cut two Brown wires (D01-0092-001) & two Blue wires (D01-0092-048) 19" ±0.5".
8.30.2 Strip about 1/4" off the end of four wires and crimp four (4) Blue Butt Splices (D01-0063-014) to the end of the stripped wires.
8.30.3 The other end of the wires, Strip about 1/4" off; Insert onto the Emergency stop switch the adapter block (D01-0592-001), label 11-12, and 21-22

Note: Switch wired in parallel wires color, "Do not cross wires". See Figure 11

Prepare one end of the Receptacle plug end cable as follows: See Figure 11.

8.31 Cut Cable (D01-0472-006) from the Receptacle end, cut off about 2.5" into an individual piece **See Figure 11.**

8.31.1 From the end of the Receptacle Plug side, cut and remove about 2.5" off insulation, and strip about ¼" off end of (Yell/Grn, Brown and Blue).
8.31.2 Cut one (1) ground Yell/Grn wire (D01-0092-038) 19" ± 0.5".

8.31.3 Strip about 1/4" off both ends of the wire, and crimp one (1) #8 Blue ring (D01-0063-002) on one end.

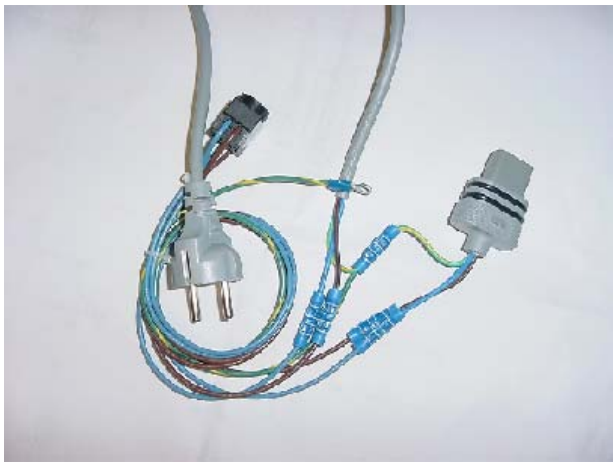
8.31.4 Attach the other end of the ground wire in step 8.3.1.3 and crimp with the receptacle ground wire using proper crimp tools.

Prepare the other end of (230VAC) Power Cable (D01-0472-006) plug outlet as follows:

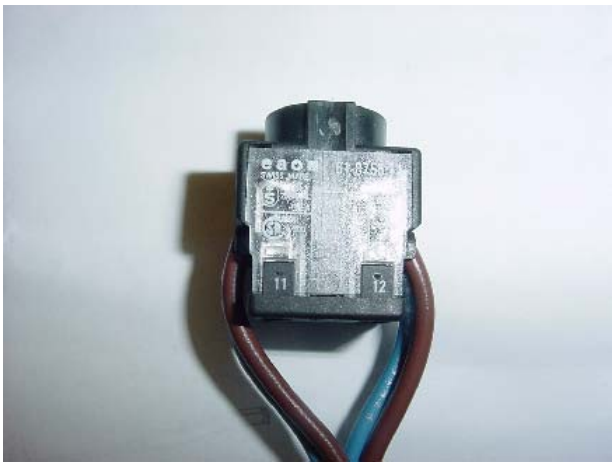
8.32 Cut and remove 2.5" ± 0.5"off of insulation, and strip about ¼" of each end of the wire.

8.32.1 Attach and crimp each wires end of E-stop switch in step 8.31.2 to Receptacle stripped end and to the Power outlet stripped end using proper crimp tools. **See Figure 11.**

Figure 11



(230VAC) Ass'y Power Cable detail



Euro Emergency Stop Switch detail

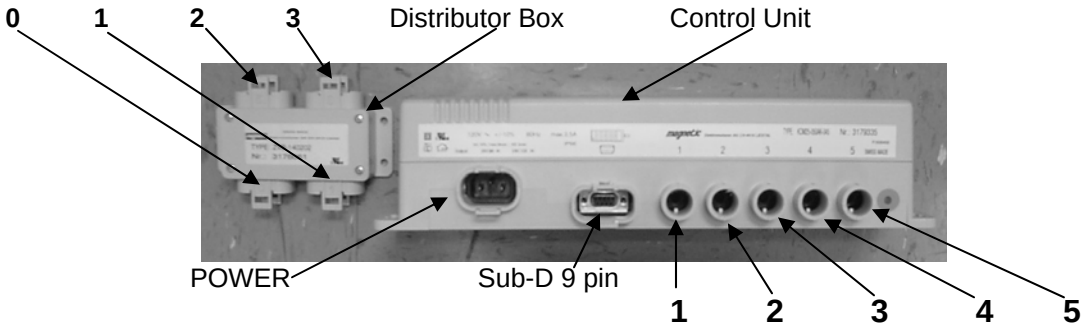
<u>Note</u>: Attach all the Power Cables from the Actuator Assemblies (D02-0491-002), (D02-0491-007) and (D02-0491-005), two cables from the top Lift Extrusion Sub-D 9 pins interconnection cable, and the Power Cable, to the Control Unit (D01-0689-002) before attaching cover. Ensure connectors are fully inserted and turned to lock in place.

See Table 1. <u>Note</u>: Make sure all cables are well secured with cable ties before installing Cable Box Cover. Pull test cables after final installation.

Table 1

Cable From: Part Number	DESCRIPTION	Plug in to the Control Unit Box Label #
D20-0491-002	Actuator Assembly	**Label # 5**
D20-0491-007	Actuator Assembly	**Label # 2**
D20-0491-008	Actuator Assembly	**Label # 1**
D20-0100-101	Cable on top Lift Extrusion (Right side)	**Label # 4**
D20-0100-101	Cable on top Lift Extrusion (Left side)	**Label # 3**
D01-0691-002	Sub-D 9 pin interconnections Cable	**Sub-D Connector**
D01-0472-006	POWER Cable	**POWER Connector**

Cable From: Part Number	DESCRIPTION	Plug in to the Distributor Box Label #
D01-0690-001	Hand switch 4 channels	**Label # 0**
D01-0691-002	The other side Sub-D Connector from the Control Unit Box.	**Label # 1**
N/A	Plug Cover	**Label # 2**
D01-0592-001	Emergency Stop	**AMP connector Power cable**



8.33 Attach the Control Cover Box (D20-0166-001), to cover the Control Unit on the Lift Extrusion using three (3) socket head cap screws # 8-32 x .3/8 (D02-0011-040) and three (3) Flat washers #8 (D02-0003-001). Use **LOCTITE 222** (D00-0018-004) on the screws; attach to the mounting plate (D20-0051-001). Firmly tighten screws. **See Figure 10.**

Note: See Drawing D20-0174-103 for the correct orientation/location.

Distributor box (D02-0504-001) detail
Figure 12

8.34 Place the Distributor Box (D02-0504-001) on the Distributor Box Spacer (D20-0059-001) using four (4) socket head cap screws # 8-32 x .75" (D02-0011-009) and four (4) Flat washers #8 (D02-0003-001). Use **LOCTITE 222** (D00-0018-004) on the screws. Attach onto the Control box cover (D20-0166-001). Firmly tighten screws. **See Figure 12.**

8.35 Attach the two Telescopic Slides (D02-0338-004) to the Frame Assembly (D20-0171-101) using 14 (fourteen) Socket Flathead screws M8 x 12mm (D02-0423-009). Use **LOCTITE 242** (D00-0018-003) on the screws.

8.36 Attach the Table Frame (D20-0172-101) to the outer slide of the Telescopic Slides (D02-0338-004) using 14 (fourteen) Socket Head Cap screws M8 x 12mm (D02-0423-009). Use **LOCTITE 242** (D00-0018-003) on the screws. **See Figure 13.**

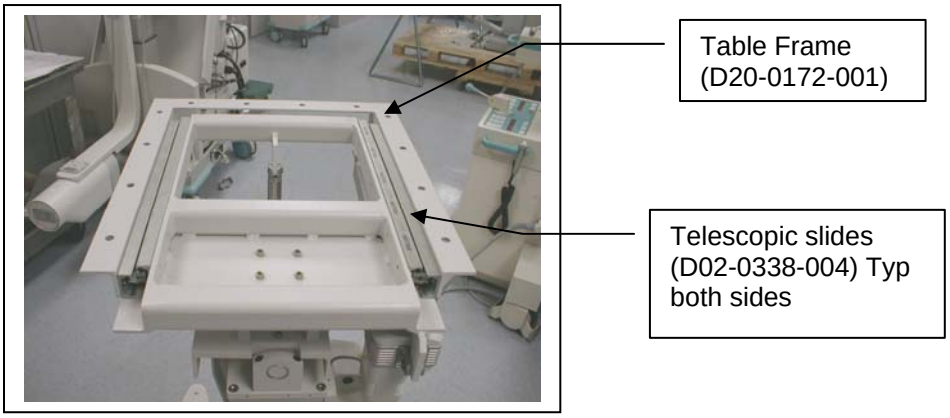


Figure 13

8.37 Attach the Actuator bracket (D20-0173-001) to the Table Frame (D20-0172-101) using 2 (two) Socket Head Cap screws (D02-0423-027). Use **Loctite 242** (D00-0018-003) on the screws. Firmly tighten screws. **See Figure 14.**

8.38 Attach the Actuator (D02-0491-008) into the Table Frame underside Bracket and the Actuator Bracket (D20-0173-001) using the 2 (two) Dowel Pins (D20-0056-002) to insert through the hole in the U-bracket. Use 4 (four) external retaining rings 10 mm dia (D02-0077-002) to lock the pins on both sides. **See Figure 14.**

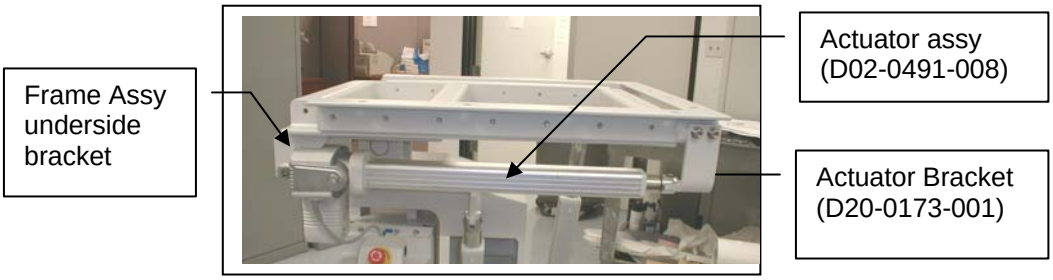


Figure 14

8.39 Attach the Center Cover (D20-0175-001) to the Table Frame (D20-0172-001) using 4 (four) Socket Cap Button Head screws (D02-0424-002).

8.40 Place the Pain Management Table (D20-0137-001) on top of the Table Frame (D20-0172-101) using twelve (12) Socket Head Cap screws M12 x 16 mm (D02-0423-015). Use **LOCTITE 242** (D00-0018-003) on the screws. Firmly tighten screws. **See Figure 15.**

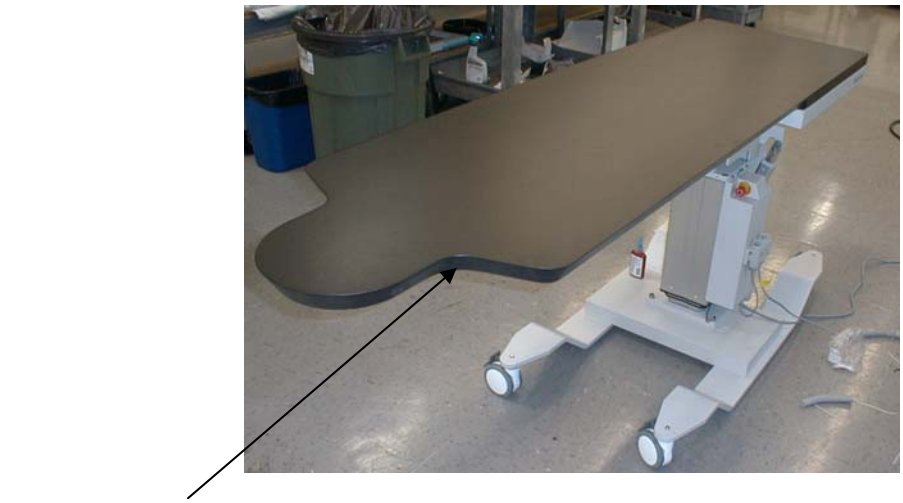


Figure 15

8.41 Place the Hand switch label (PL20-0007-001) on the Hand switch (D01-0690-001). The hole on the left side of the label needs to show on the power LED of the Hand switch. Attach Hand Switch to Distributor box location shown in Table 1 **See Figure 16.**

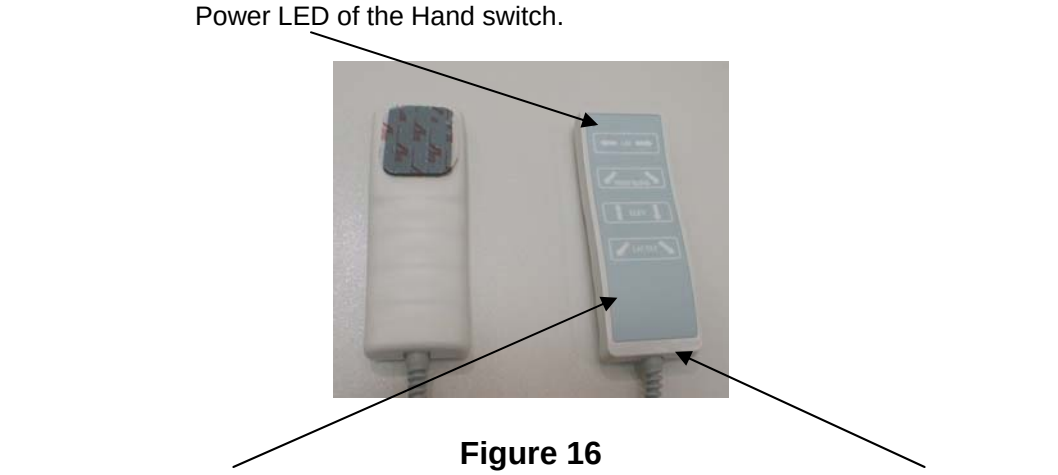


Figure 16

8.43 Add Table Pad, Pain Management (D20-0139-001) to Pain Management Table (D20-0174-103) Assembly.

8.44 Add labels as shown in **Figure 17** to complete Pain Management Table (D20-0174-103) -. ETL Label to be added after successful completion of TP20-0001 by QC.

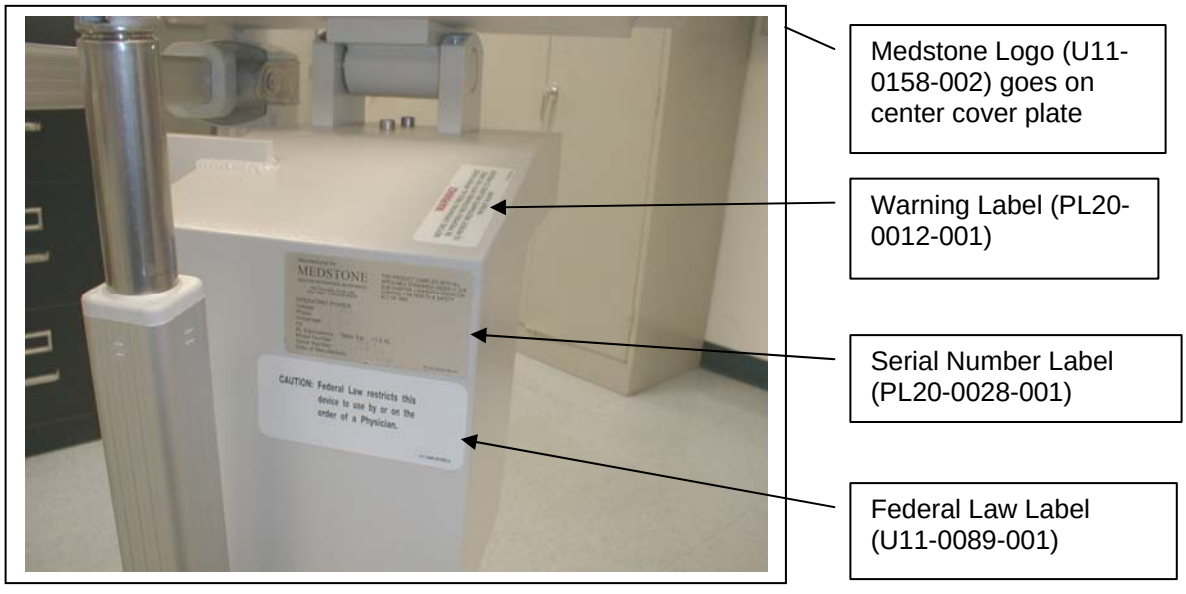

Medstone Logo (U11-0158-002) goes on center cover plate
Warning Label (PL20-0012-001)
Serial Number Label (PL20-0028-001)
Federal Law Label (U11-0089-001)
MEDSTONE
CAUTION: Federal Law restricts this device to use by or on the order of a Physician.

Figure 17